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ABSTRACT

Interactive Research and Development on Teaching (IR&DT) is an alternative Research and Development (R&D) strategy that probes the questions, problems, and concerns of classroom teachers in a nonlinear manner. Each of the primary functions of traditional R&D--research, development, dissemination, and implementation--are performed collaboratively by an IR&DT team composed of teachers, researchers, and trainer/developers, rather than in the standard R&D sequential ordering. This new approach limits the formation of diverse constituencies within the larger research group, and permits smooth implementation of research results into practical use. The collection of papers presented here examines a San Diego-based team's IR&DT and examines the consequences and effectiveness of this innovation. The effect of the strategy on personnel, data collecting, and educational policy makers is discussed. (LH)

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Interactive Research and Development on Teaching

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INTERACTIVE RESEARCH AND DEVELOPMENT ON TEACHING:

AN OVERVIEW OF THE STRATEGY

1979 AERA Annual Meeting
(Session 10.15)
San Francisco, California

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INTERACTIVE RESEARCH AND DEVELOPMENT ON TEACHING

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Interactive Research and Development on Teaching (IR&DT) is an alternative strategy for conducting educational R&D that places teachers, researchers, and trainer/developers on a team to inquire into those questions, problems, and concerns of classroom teachers. Funded by the National Institute of Education and under development and testing at the Far West Laboratory since 1976, the strategy proposes that IR&DT teams conduct research and concurrently develop training for other teachers based both on the teams' research findings and on the research methods and procedures employed. Thus, how teachers can inquire into similar phenomena in their own classrooms is as important a training focus as the findings themselves. Team composition insures contribution of the diverse expertise of each of the participants--an expertise in teaching represented by teachers, expertise in research represented in the researcher, and expertise in designing and conducting training for other teachers represented by the trainer/developer. Decisions on an IR&DT team are made collaboratively, with each member of the team receiving parity and sharing equal responsibility for decisions made, from identification of the question/problem through completion of all ensuing R&D activities.

IR&DT offers an alternative to traditional, linear educational R&D wherein the four primary functions of R&D--research, development, dissemination and implementation--are performed separately and sequentially by different actors. In the linear approach, researchers do the research,

developers design and pilot training products, disseminators distribute information and training, and teachers implement these in their classrooms. This linear conception assumes that change in the classroom results from logical progression through the four steps. However, IR&DT argues that using the linear approach has resulted in constituent groups, each representing one of the four functions of R&D and responsible for only accomplishing a single task in isolation from the others. As well, teachers are excluded from early-on decison-making concerning the focus of R&D, and this has mitigated against successful implementation of educational innovations.

IR&DT was implemented at two sites over a 15½ month period (1977-78) in order to study (1) the effects of the strategy on the participants, their respective institutions, and others with whom they interact; (2) the rigor and usefulness of both the research findings and training strategies produced; and (3) potential policy implications for consideration by NIE and other federal agencies in funding future R&D. In order to vary characteristics, sites were located in San Diego, California, where all participants were employees of a large, urban school district, and in Vermont, where the researcher and trainer/developer were faculty members at the University of Vermont and the teachers were employees of a small, independent school district in a rural area 20 miles from the University.

The collection of papers here present the San Diego IR&DT team's research as well as a discussion of the teachers' perceived experiences; a discussion of the consequences of implementation and studying it; and reactions from a member of the National Advisory Panel for IR&DT, Carolyn Evertson, and a teacher collaborator from another research group, Carlette Kennedy. They were presented in a session at AERA in April 1979.

A SUMMARY REPORT OF THE STUDY:

COPING WITH CLASSROOM DISTRACTIONS

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The original research of this study was supported by the National Institute of Education, Department of Health, Education, and Welfare, began under Contract NE-C-00-3-0108 and continued under Grant OB-NIE-G-78-0103. The opinions expressed in this publication do not necessarily reflect the position or policy of NIE and no official endorsement by NIE should be inferred. We are indebted to the Far West Laboratory for Educational Research and Development for their support of the project.

COPING WITH CLASSROOM DISTRACTIONS

One of the major goals of any educational institution and process is learning. Learning is a complex process which involves a multitude of factors. Berliner and Rosenshine (1977), for example, saw the acquisition of knowledge as crucial and based on such factors in the classroom as the curricula (what is to be learned and taught), the method of communication (the ways of presenting a curriculum), and the teacher (including both instructional ability and skills). Another key factor influencing the learning process is time (Bloom, 1974; Carroll, 1963). A sufficient amount of time is necessary to learn a given task or body of knowledge. Carroll (1963) contended that the amount of time involved in the learning process is mediated by the complexity of the knowledge or task, the learner's aptitude, the quality of instruction and the ability of the learner to understand the instruction.

Other studies of the learning process have focused on the importance of engaged time, or "time-on-task" (Berliner, et al., 1976; Stallings, 1975). Stallings (1975), for example, in a study of 150 Follow-Through classes, found that instructional time was a powerful factor in accounting for the acquisition of knowledge in the classroom. BTES (1977) was a publication of the Beginning Teacher Evaluation Study. According to this study, the more time a student spent on a specific content area, the more learning took place. Two important factors influencing instructional time were the size of the group and the resources available to the teacher (e.g., instructional aides).

Still other research has isolated teacher's style and classroom management techniques as important determinants of the learning process (Brophy and Evertson, 1976; Cooley, et al., 1977; Tikunoff, et al., 1975). One of the factors which was considered important was the degree of continuity of instruction. Tikunoff, et al. (1975) found that immature learners (primary grade children) could not thrive when choppy or disjointed lessons occurred within a given instructional period (e.g., teacher switching from individual instruction in reading to behavior management, then to reading the principal's message, and then to large-group instruction). In their review of the literature on the causal factors involved in student achievement, Berliner and Rosenshine (1976:15) supported this conclusion when they stated:

> It may be concluded that at the primary grades, more academic knowledge is acquired by students in classes where (a) the schools and teachers have advocated more time for academic instruction; (b) the time used for lessons is continuous rather than disjointed; ...

In a study by Cooley, et al. (1977), the authors attempted to conceptualize and identify what constituted effective teaching. They isolated several factors which included: student outcomes, teaching behavior, classroom processes, student differences, instructional effectiveness of the curriculum and the quality of the schooling. Based on these factors, a model of classroom processes was constructed in order to measure various instructional dimensions. These dimensions included structure and placement, instructional events, opportunity and motivators.

THE PROBLEM

The literature on learning indicates that the acquisition of knowledge is a complex process. However, certain factors appear crucial. One of these factors is time. In the San Diego Unified School District, much attention has been directed to studies which report the importance of students' "time-on-task." The concept of the amount of time students are engaged in meaningful learning activities caught the interest of top-level district decision makers. District regional meetings were held in the fall of 1977 to familiarize site administrators with the literature regarding instructional time. These site administrators were asked to disseminate information which supported the importance of students spending sufficient time engaged in learning reading, math and other academic skills. How to find (additional) time for classroom teachers to meet these requests was not elaborated upon. Implicit was the concept of more effective classroom management. The demands placed upon teachers to maintain the flow of instruction in the context of other demands (e.g., recordkeeping for special funded projects, individualized instruction) was acknowledged. Remedies to insure that sufficient time would be available for academic instruction were few.

One domain of classroom management related to the erosion of classroom instruction time was proposed for study by a group of district employees*. It was in the domain of interruptions to instruction or *classroom distractions*. This group contended that if "time-on-task" were as important as contemporary research indicated then an investigation of the distractions which classroom teachers encounter and the techniques they use appeared timely and desirable. The additional time gained from successful distraction-coping would apparently be more acceptable to many educators than the instructional time obtained by displacing an instructional domain (e.g., art, music).

It was further concluded that an investigation of classroom distractions and the discovery of functional distraction-coping techniques were not sufficient ends in themselves. Some means of disseminating functional coping strategies were also needed. The research design of this study incorporated an inservice-feedback intervention. This intervention was intended to provide preliminary insights with respect to teacher receptiveness to inservice training of distraction-coping strategies.

The purpose of this study was to examine the techniques classroom teachers use to cope with distractions to classroom instruction and to determine how effective these techniques are with respect to: (1) minimizing instructional time lost due to distractions, (2) dealing with distractions at a level which has a minimal disruptive effect upon the flow of instruction, and (3) eliminating distractions.

DEFINITION OF TERMS

Classroom distractions may be defined as those events which take teachers and/or their students off the intended instructional tasks. This includes any behavior, activity or event that comes to the attention of either the teacher or his/her students. Classroom distractions generally activate or motivate a response from the teacher and/or students. The types of classroom distractions are contingent upon their source. Many distractions come

*The San Diego Interactive Research & Development on Teaching Team.[1]

from the students either alone or based on the interactions with other students (e.g., classroom noise). Other distractions come from outside sources such as visitors to the classroom, parents or staff members. Still others are from non-human sources such as the structure of the classroom or school, or special activities and other outside forces (e.g., weather, construction).

Coping techniques may be defined as any mechanisms, verbal or nonverbal, used by the teacher to eliminate a distraction. Some coping techniques are preventive in nature and are not used only to eliminate the current distraction but to prevent similar distractions in the future (i.e., the teacher reminds the student of the rules). These techniques are related to the teacher's classroom management skills and style. Other coping techniques are reactive. They simply react to a given distraction in order to eliminate it and get back-on-task.

Linkages are the interrelationships between classroom distractions and coping mechanisms. For the purpose of this study the relationship of a particular coping technique in response to a specific distraction is called a linkage. Certain types of distractions may evoke specific kinds of coping mechanisms. These, however, may be mediated by the key elements involved in the classroom such as the students, teachers and classroom environment.

Classroom distractions, *coping techniques* and *linkages* are examined in terms of the instructional time lost, the flow of classroom instruction (degree of disjointedness) and elimination of the distraction (degree of persistence after coping technique is utilized).

FACTORS INFLUENCING THE LEARNING PROCESS

Literature on the learning process tended to focus on three key conceptual elements: (1) the student, (2) the teacher, and (3) the classroom structure and environment. Certain characteristics of students were viewed as important determinants of the learning process (Carroll, 1963; Cooley et al., 1977). These included the student's ability, aptitude, motivation and socioeconomic status. Two important characteristics associated with the teacher were classroom management and teaching style (Brophy and Evertson, 1976; Cooley, et al., 1977; Kounin, 1970). These two characteristics encompass the teacher's ability to communicate the curricula, the teaching methods employed and classroom management skills. Finally, the classroom structure and environment included the actual physical structure of the classroom and the materials in it, and the arrangement (organization) of students and curricula (Gump, 1967). The classroom structure seemed highly related to the teacher's style and management techniques. For example, the manner in which a given classroom was structured in terms of the grouping of students, degree of individualization, arrangement of resources (chairs, desks, learning centers), arrangement of classroom segments (time allotted to a given curriculum) and mechanisms for classroom organization (use of physical props) was tied to both the students involved and the teacher (Cooley, et al., 1977).

While the literature on the learning process suggested that there are certain important factors in the classroom which may affect the time a teacher has for instruction and, therefore, a student may concentrate on a given task or body of knowledge, the analysis of these factors and their

relative import has received differential treatment by educational researchers. Little, for example, was found on the investigation of the impact of classroom distractions on the learning process even though the distraction may interrupt the flow of classroom instruction, the time allotted to a given task and the effectiveness of the instruction. The literature was also sparce in the study of techniques to cope with classroom distractions and their effects on the elimination of these distractions (Jackson, 1968).

Although only indirectly related to this problem, the studies by Brophy and Evertson (1976), Gump (1967) and Kounin (1970) are suggestive of the types of variables involved in the classroom which may affect the instructional process. Gump (1967) developed a methodology and some concepts for the description of the classroom as a behavior setting. Based on his conceptualization of the classroom structure in terms of narrative records and segments (a part of the classroom environment which focuses on a specific task or process such as reading), he found that 51% of all teacher activities focus on pedagogical efforts (Gump, 1967:54). The rest of the time the teacher was concerned with structuring activities, deviant behavior, individual problems and transitions between classroom segments.

Kounin (1970) analyzed classroom discipline and management. In particular he focused on "desists" and the "ripple effect." A desist was defined as a teacher doing something to stop a student's misbehavior. The ripple effect was concerned with the effect a given desist had on other students in the classroom. Kounin found that the ways of dealing with a student's misbehavior was contingent upon the teacher's managerial techniques and style. This conclusion suggests that a teacher's desists (coping techniques) are important mechanisms which attempt to deal with misbehavior (classroom distractions) and, thereby, allow time for the student to learn (more time for the teacher's instructional activities). While Kounin's study did not focus on the learning process specifically, it isolated several important factors in the classroom environment. The most notable factors were classroom management, teacher style, classroom distraction and coping techniques.

Brophy and Evertson (1976) expanded the studies by Gump and Kounin as they specified several of the factors and characteristics for good and successful classroom management. These factors included the type of seatwork assignments, the degree of planning, awareness of classroom activities and the student knowing what to do.

The literature reviewed, then, indicated that there are key elements which affect the time a teacher has for instruction and that a student may concentrate on a given task. The types of classroom distractions and the resulting coping techniques would also seem to be influenced by these factors. In addition the linkages between classroom distractions and coping techniques are important when examined in terms of the relative effectiveness of eliminating a distraction, the time involved (so both the teacher and the student can get back-on-task), and the flow of the classroom (in terms of disjointedness and transition). These concepts are important because the more time a student has on a specific content area, and the more instructional time the teacher has, the more the student should learn (BTES, 1977; Stallings, 1975).

The remainder of this study examines many of these key elements and describes the findings of the San Diego Interactive Research and Development on Teaching Team. Finally an emerging model of how teachers cope with classroom distractions is discussed based on the literature and results of this study.

METHODS

One of the problems associated with research in the classroom is the type of methodology appropriate to the study of behavior in such a setting. Some researchers have advocated that perhaps multiple perspectives to the interactions between teachers and students are needed; with quantitative data supplemented by qualitative data (Tikunoff, et al., 1975; Tikunoff and Ward, 1977; Rist, 1977).

While there has been a heavy reliance on quantitative data in the past, recent literature has advocated research in a naturalistic setting utilizing ethnographic methodology for the study of the classroom (Charlesworth, 1974; Eisenberg, 1977). The use of ethnographic research methods can complement the use of quantitative methodology. In this study both types of methodology were utilized in order to gain insights into how classroom teachers cope with classroom distractions.

Eight primary grade teachers participated in the investigation. Half of this group had been involved in the identification of the problem and the generation of the research design. The remaining four teachers were recruited from similar grade levels and schools to provide a larger population for data collection*. Data were collected from mid-February to mid-April, 1978.

Three of the Level I teachers were colleagues at a relatively small K-6 school with a faculty of 15 (student population was approximately 400). Approximately half of the school's families qualified for federal aid. The fourth teacher team-taught a class of 60 students in a large K-6 school (40 teachers and approximately 1200 students). Level II teachers were selected so environmental characteristics (e.g., grade levels, school and student demographics) were similar to the other four.

Eight classroom-experienced persons were employed as observers. Classroom experience, descriptive ability and an attitude of sincere interest in the study were the key criteria in selecting the observers. These observers were divided into four teams. Each team consisted of a quantitative and ethnographic observer. During an orientation phase, the observers visited the eight classrooms to familiarize themselves with the classroom arrangements and daily management style of the teachers.

Three types of observations occurred. There were 4 observational teams collecting data in eight classrooms. In each classroom, two non-participant observers and one participant observer collected data from different perspectives. The two non-participant observers received training and descriptive classroom-context information prior to classroom visits. For each team, one non-participant observer collected quantitative data using an observation checklist, while the other used ethnographic techniques. In each classroom, the participant observer was the classroom teacher. Insights regarding the distractions which occurred and the coping techniques utilized, and circumstances beyond overt classroom actions, were addressed in a log which each teacher completed after each observation.

The focus of the ethnographic observer was primarily on the sequence of events and interactions between teacher and students. At the end of each observation the ethnographer embellished the notes and dictated them onto cassette tapes. Each of these tapes were transcribed later. The quantitative

*These two sets of teachers are referred to as Level I and Level II teachers, respectively, in the data which follow.[2]

observer transformed the other observational data to mark-sensed computer cards specially designed for the study.

Both of the non-participant observers attempted to be as unobtrusive as possible. The retention of a naturalistic setting was considered of paramount importance. Clarifications of distractions and coping techniques were kept to a minimum between the two non-participant observers.

Besides collecting information to document the kinds and frequency of distractions and coping techniques, the observers sought to collect data indicating the relative effectiveness of the various distraction-coping linkages. The three indicators of the effectiveness were TIME, FLOW and ELIMINATION. See Figure 1 which illustrates the data collection schema.

- Figure 1 About Here -

FINDINGS

A distraction, for the purpose of this study, is defined as any event which takes the teacher and/or her students off their intended instructional tasks. The 29 distraction categories used for quantitative data collection are displayed in Figure 2. During the 72 classroom observations (nine visits to each of the eight classrooms), a total of 3062 distractions were coded. While the frequency varied between classrooms, an average of over 40 distractions for each observation occurred. In some classrooms, the distractions during the planned reading instruction time occurred more frequently than one per minute.

- Figure 2 About Here -

Table 1 contains data to illustrate the occurrence of distractions. Data are provided for each teacher (e.g., Teacher A), for both levels of teachers, and for all teachers combined. Only those distractions which occurred at least one percent of the total are displayed. The specific distractions which occurred most frequently are #11, #13, #14, #15 and #16. The percentages of occurrence of the various distractions are illustrated by Figure 3.

- Table 1 About Here -

- Figure 3 About Here -

Distraction #11, STUDENTS VERBALLY INTERRUPTING THE TEACHER, accounted for nearly one-quarter of the distractions (24.7 percent). This category included students interrupting the teacher, seeking approval, telling of other students bothering them, and a variety of student-generated questions. The ethnographic notes contained numerous examples of this type of distraction.[3]

According to Table 1, 89.2 percent of the distractions were Student Generated (Codes 11 through 19). School Generated Distraction (Codes 21-29) accounted for an additional 6.4 percent and the other irregular occurring distractions accounted for the remaining 4.4 percent. The relative occurrence of distractions were similar for grade-level counterparts (e.g., A and W were kindergarten teachers, B and X were 1st grade, C and Y were 2nd grade, and D and Z were 3rd/4th grade open-environment classrooms teachers).

Coping Techniques

For each event which was coded as a distraction, there was an action taken by the teacher to cope with the distraction. Hence, since the total number of distractions was 3062, there were also 3062 coping techniques exercised (some of these coping techniques were actually combinations of other coping techniques). Figure 4 displays the types of coping techniques used in the quantitative classification system.

- Figure 4 About Here -

Table 2 contains the distribution of coping techniques utilized by each teacher. Only those coping techniques which accounted for at least one percent are displayed. Verbal techniques accounted for 71.9 percent of all techniques coded. Nonverbal, preventative or preplanned, and combinations techniques accounted for 19.9, 3.1 and 5.1 percents, respectively.

- Table 2 About Here -

Coping Technique #11, DIRECT COMMAND, was by far the most common technique (48.0 percent). This fact is graphically illustrated by Figure 5 which displays a histogram of those distractions which occurred one percent or more. The use of Coping Technique #11 varied from a low of 34.4 percent to a high of 63.5 percent amongst the various teachers.

- Figure 5 About Here -

Reviewing the data in Table 2 it may be noted that the higher the grade level, the higher the percentage use of Coping Technique #11. That is Teacher D's (48.7 percent) use of the the technique was more that Teacher C (45.5), which was more that Teacher B (39.9) which was more than Teacher A (34.4). The same finding is valid for Teachers W, X, Y and Z (63.5, 60.0, 57.6 and 45.6 percents). Hence, it would appear that the higher the grade level, the more the use of verbal direction.

An interesting pattern, in the reverse direction, appears for Coping Technique #13, REMINDING STUDENTS OF RULES. The kindergarten teachers (A and W) reminded more than grade one (B and X), who reminded more than grade two teachers (C and Y), who reminded more than grade three teachers (D and Z). This finding may be interpreted along with the other (above) finding to infer that the younger the student the more the teacher reminds him/her of rules (a socializing effect), and conversely, the older the student the more the

teacher tells him/her what to do (it is assumed that the rule is known to the student).

The sixteen coping techniques displayed in Figure 5 accounted for 95.5 percent of the coping techniques utilized by the eight teachers. The other 4.8 percent were sparsely spread across sixteen other categories.

While there were marked similarities in the kinds of distractions which occurred in the primary grade classroom, similar grade-level patterns of coping techniques were not noticeable. This variance is, perhaps, reflective of the individual teacher personalities, teaching and coping styles, and educational philosophies.

Linkages

For each distraction coded, there was a coping technique exercised. This relationship is referred to as the *linkage* of the specific distraction and coping technique under consideration. Hence, for each of the 29 possible distraction categories, there were 24 coping categories eligible to resolve the distraction (not counting combinations). Regardless of the exact count, there are more than 700 possible linkages, when each distraction is linked with each possible coping technique.

Table 3 displays a matrix of the frequencies of occurrence of various linkages The codes down the left side of the matrix represent the distractions, and across the top are the coping technique codes. Subtotals of various groups of codes are indicated by "SUB". This display is admittedly complicated, but does contain much information. In essence, the occurrence of all 3062 distraction-coping linkages are displayed on this one page.

- Table 3 About Here -

Some of the major findings from this matrix are relative to the sparseness of data in some linkage cells and the high frequency of occurrence of other linkages. For example, the Distraction-Coping Linkage #11-#11 occurred most frequent (405 times). This would seem to follow from the information contained in the previous two tables [i.e., Distraction #11 occurred most frequently (24.7 percent) as did Coping Technique #11 (48.0 percent)].

Since Coping Technique #11 occurred so often, its linkage with various distractions is common. By far, the highest concentration of linkages is displayed in the upper-left portion of the data matrix. The spareseness of data in the other regions resolves the need to review the *effectiveness* of many linkages.

Since the indicators of effectiveness (TIME, FLOW, and ELIMINATION) are the outcome measures of the linkages, the emphasis of the remainder of this section is placed on the relative effectiveness of certain linkages or sets of linkages.

The indicators of effectiveness are illustrated by the three histograms in Figure 6. Aggregating the effectiveness ratings for all 3062 linkages provided the data which are displayed in Figure 6.

- Figure 6 About Here -

The code for each rating is provided below each histogram. As a frame of reference, the median ratings for the aggregated data are listed below:

Md_{TIME} = 1.4; more than five seconds but less than 10.

Md_{FLOW} = 2.6; minor interruption to the teacher and students.

$Md_{ELIMINATION}$ = 1.2; the distraction was usually eliminated.

Hence, a simplistic summary of this study (to this stage of data presentation) would be:

> Usually distractions, occurring at a rate of approximately one per minute, are student generated (89.2 percent of the occurrences) and are coped with in an ongoing fashion by the teacher using verbal coping technique (71.9 percent of the occurrences). Typically, the distraction and the coping technique utilized take between five and 10 seconds; distracting the teacher and the group she is working with; but the distraction is generally fully eliminated.

Using a midrange estimate of time loss the average distraction expended around 10 seconds (9.7) of instructional time.

Relative Effectiveness of Linkages

Figure 7 graphically displays the findings of the analysis of linkage effectiveness. The analysis procedure undertaken was as follows:

> Disregard any linkage which occurred less than 10 times, due to sparseness of data (such linkages are "masked-out" in Figure 7).
>
> For the remaining 56 linkages, order their mean effectiveness rating for TIME from high to low. Repeat the ordering process for the FLOW and ELIMINATION indicators.
>
> Disregard the middle two-thirds of the respective three continuums as being of indeterminant effectiveness (actually, mid-70+ percent).
>
> Identify the highest ranked values for the TIME continuum as effective linkages (T) and the lowest-ranked values as ineffective linkages (*t*). Similarly effective and ineffective linkages were identified for FLOW values (F and *f*, respectively), and ELIMINATION values (E and *e*).

- Figure 7 About Here -

Inspection of Figure 7 provides many insights (which of course must be tempered by the context variables which are being temporarily disregarded). A few of these insights follow as examples:

> Coping Technique #21, TEACHER USING BODY LANGUAGE, GESTURES AND FACIAL EXPRESSIONS, appears to be a quick technique which did not significantly interrupt the flow of instruction (note Linkages 11-21, 13-21, 14-21, 16-21 and 21-21 -- look for T's and F's).

Other nonverbal coping techniques have effective TIME and FLOW ratings (see #23 and #25), while some do not (see #24 and #27) -- especially if the teacher has had to relocate herself to reposition a student (Coping Technique #24) or to actually "fix" the problem herself (Coping Technique #27).

Some coping techniques were effective in eliminating a distraction but took more time and interrupted the instructional flow (e.g. Linkages 12-13 and 11-27). Conversely, there were some coping techniques which were quick, but the distractions persisted (e.g. Linkages 14-21 and 16-23).

Instructional Time Loss

As was discussed earlier in this paper, the amount of instructional time teachers lose to distractions was an important dimension this study sought to investigate. It was never the intent for observers to compromise the naturalistic nature of the study by using an engineer's time-study approach (i.e., stopwatches in hand, clicking on and off as distractions occurred and were coped with). Instead, data from the quantitative data and from the teachers' daily logs were to give estimates of time loss.

Table 4 provides a summary of the data obtained from these two data sources. The display of information is divided into the two major sets of data; quantitative data and teacher log data. The appropriate statistics are provided for each teacher, both levels of teachers, and for all teachers combined.

- Table 4 About Here -

Inspecting the All Teachers set of data in Table 4, the following findings may be noted: There were more than 40 distractions per observation (42.2); the average observation took 58 minutes; average time loss was almost 7 minutes (6.9); and by quantitative data estimates, the percentage of time lost due to distractions was 11.9%; teachers' estimated an average time loss of 7.5 minutes which represented 12.9 percent of their reading time.

Regardless of which data source is referenced, the conclusion is that about one-eighth of reading instructional time is expended coping with distractions. According to the quantitative data, the percentage of time loss due to distractions decreases as the grade level increases, except for Level I, Teacher D (open classroom environment). That is, Teacher A (16.9%) > Teacher B (9.2%) > Teacher C (7.0%), for Level I teachers; and Teacher W (23.7%) > Teacher X (12.6%) > Teacher Y (8.2%) > Teacher Z (5.7%), for Level II teachers.

In summary of this section, an average of 7 minutes was expended coping with distractions for each 58 minute observation. In other words, about one-eighth of each reading period in the primary classrooms of this study was devoted to distractions and their resolution. The teachers of this study doubt that the proportion of time loss can be reduced significantly, because most distractions are a function of student, environmental, and teacher-style factors over which the typical classroom teacher has little control.

DISCUSSION

The literature reviewed earlier and the findings of this study suggest an emerging model of the nature in which teachers cope with classroom distractions. These sources imply a conceptual framework for the coping techniques teachers use and the techniques' relationship to other classroom variables. Both classroom distractions and coping techniques utilized by teachers are impacted by student, teacher and environmental factors. The outcomes of the learning process are affected by the interaction of these three sets of variables.

The model presented in this paper is influenced by the postulated relationships between student, teacher and environmental factors. It is further hypothesized that these factors will affect whether a particular event will be envisioned as a distraction and/or the kinds of coping techniques the teacher will use. For example, not only do students have certain characteristics (e.g., ability, aptitude, attitude, level of motivation) which may influence their relationship to the teacher, but some of these characteristics are further impacted by the interaction of teacher-environmental factors (e.g., the teacher's style and use of classroom management skills with respect to the grouping of students; arrangement of material resources; degree of individualization; etc.). Student, teacher and environmental factors may function independently, as well as be mediating variables which influence the learning process. They essentially circumscribe the whole process.

Some of the characteristics of students, teachers and the environment are stable while others are situational or temporary. A teacher's tolerance on a given day is a variable. However, a teacher may be characterized in terms of her/his overall style and management skills which are relatively stable over time. For example, a teacher may be considered "easy going" and relatively tolerant of classroom noise. On a given day, however, the teacher may not have a high degree of distraction tolerance. Therefore, the general noise level of the students in the classroom may be a distraction on one day but not on another.

The characteristics of students, teachers, environment and their interaction influence the types of events as well as mediate their perception as potentian distractions. The teacher's classroom style and management skills may prevent some potential distractions from occurring and, on the other hand, encourage others. For example, some teachers will encourage student-to-student interaction (perhaps based on pedagogical reasons or some other rationale) which will generate a higher classroom noise level. If the noise level becomes a problem then the teacher will react to it with some coping technique. Noise level as a potential distraction is also affected by the characteristics of the student in terms of maturity, attention span and the degree to which the student knows and understands the rules.

Environmental factors might affect noise level too. An open classroom, for example, may be more conducive to the free movement of students and their interaction, and therefore, generate a higher noise level than a contained classroom. That is, the teacher may not allow the students to interact as freely, or perhaps the students might have to ask permission to leave their seats in the contained classroom. In this case, the structure of the classroom environment might promote many student interruptions of the teacher as students ask permission to leave their desks to get materials.

In the contextual framework of the factors described above, a model of classroom teachers coping with distractions is graphically presented in Figure 8. Two "sample runs through the model" may assist the reader in understanding its operation.

- Figure 8 About Here -

Let a hypothetical event occur, such as an eager child answering a question directed by the teacher to another student. The first two considerations of the model are whether or not this event constituted a distraction (Did the event, and any subsequent coping technique, take the teacher and/or her students off their intended instructional tasks?). If the student's eagerly answering out did not interrupt the intended instructional task then instructional flow continues (next box). The next consideration occurs very subtley within the teacher's thinking process (*How are things going? Am I on my time schedule to complete the lesson I have planned?*). If an affirmative response answers this time consideration then the learning process continues; at least until the next event occurs. In this hypothetical instance, the event went directly through the model.

The next hypothetical event takes a more circuitous journey. Using the same action as the sample event (student answering out of turn), if this does distract the teacher then she chooses to cope with it. From her coping arsenal she selects and utilizes a coping technique (with the selection and manner of use influenced by student, environmental, and teacher factors). The next consideration is does the selected coping technique (e.g., *Jane, you're not suppose to answer when it's someone else's turn.* Coping Technique #13, REMINDING STUDENT OF RULES) eliminate the distraction? If yes, the instructional flow continues. If not, the teacher would then use the same or an alternate technique, until the distraction was eliminated.

Once the instructional flow continues, the teacher considers the status of her lesson plan in the context of her intended time allocation. If she determines that insufficient time remains, she may take two courses of action. She may alter her lesson plan by revising her plan (e.g., *OK, let's move on. Cindy and Charlotte, you will get your turns tomorrow when we do the words ending in "ED".*) An alternate course of action is that the teacher may change her distraction tolerance and how she copes. That is, a teacher may, during the last twenty-seconds of a lesson, tolerate an event (e.g., student out of his chair) which fifteen minutes earlier she would not tolerate. Also influenced by the time consideration is her selection of coping techniques. If the teacher is "running out-of-time," and if she chooses to cope, she may select a technique which is believed to be quick (e.g., *Sit down, David.* Coping Technique #11, DIRECT COMMAND).

The number and nature of the "side-trips" taken obviously influence the outcome of the coping model, the continuance of the learning process. The three sets of contextual factors (student, teacher, and environment) influence all of what occurs within the model.

One tangential journey which has not been discussed is represented by the dashed box in the lower portion of Figure 8. If a teacher tolerates (or is not aware of) an event which does distract the students, then other actions

and considerations probably occur before the instructional flow continues. This important side-trip was not within the focus of this study. Its investigation merits consideration. Since the student often does not have control over the instructional flow, there is little he or she can do (except, perhaps to involve the teacher in order to eliminate the distraction). However, the student does have some degree of control over environmental conditions, and it is hypothesized that students have their own sets of coping techniques to use if they want to get back on task.

CONCLUSIONS

The key elements in the coping with classroom distractions model are the elimination of distractions through effective coping techniques in an attempt to maintain a continuous flow of instruction, thereby minimizing the time loss due to distractions. This study has isolated, analyzed and discussed several distraction-coping linkages with respect to these elements (TIME, FLOW, ELIMINATION). In some cases, preventative coping techniques are effective. Many of these preventative techniques (e.g., rearrangement of learning centers, delegating selected tasks to aides) can be adapted to a teacher's style and management skills. Other distractions are effectively eliminated by the teacher using ongoing coping techniques (e.g., a direct command, a gesture, touching a student's shoulder, ringing a bell).

The interrelationship between student, teacher and environmental factors in terms of distractions and coping techniques appear to be based on several clearly defined "assumptions." First, it is a given that there are variations or differences between students. These variations may be in the form of motivation, ability, socioeconomic status, attention span, maturity, interests and many other social and personal characteristics. While some of these variables can be "controlled" in a given classroom (by age grading, tracking, ability grouping, interest grouping) most are beyond the control of the teacher and cannot be changed.

Second, there are variations in environments or classroom structures. Some classrooms may be open and flexible, while others may be contained within fixed structures. While there may be many similarities and a high degree of overlapping, curricula in various schools may vary, as well as they way students are grouped. The degree to which the teacher has control over these environmental factors varies from school to school and even classroom to classroom. Many times a teacher has little control over the grouping of students, or whether she/he will have an open or contained classroom.

Third, there are variations among teachers in terms of their style of teaching and their management skills in the classroom. While one's style of teaching may reflect the teacher's personality and philosophy of education (which is often resistant to change), almost any teacher can incorporate new management skills in the form of coping techniques into his/her arsenal (as long as the techniques are compatible with the teacher's style and beliefs).

Because of these variations in teachers, students and classroom environments it is difficult (impossible) to isolate specific techniques which will work in all cases. The main objective of this study is to make teachers aware of the factors involved and those distractions which may be coped with effectively. Finally, there is an underlying assumption that TO CHANGE is difficult. However, the first step in a process of change is an awareness of the need for change. There is a relationship between time and learning. If

the teacher can become aware of effective coping techniques which maximize the time a student has for learning then the student should learn more. Providing teachers a non-threatening, non-evaluative means of becoming aware of their classroom distractions and how they cope is the key to initiating the change process.[4]

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NOTES

1. Interactive Research and Development on Teaching (IR & DT) is a R & D strategy that places teachers, researchers, and trainer/developers together to inquire as a team into those questions, problems, and concerns of the classroom teacher. Decisions are made collaboratively regarding research issues and strategies and the concurrent development of training that grows from the research. Each member of an IR & DT team has parity and shares equal responsiblity for decisions made by the team, from identification of the question/problem to the completion of all resultant R & D activities.

2. The tables included in this paper display data for certain subpopulations (e.g., Level I teachers), although no corresponding discussions are provided. The reader who wishes to examine data beyond those which are discussed in this summary article is referred to the original study (Coping With Classroom Distractions: The Formal Research Study. Report IR & DT 79-2. Far West Laboratory for Educational Research and Development, San Francisco, 1979).

3. Due to space limitations of this summary article, illustrations taken from the descriptive ethnographic notes have been omitted. Again, the reader is directed to the study mentioned above for a more detailed description. The importance and the complementary nature of the ethnographic data are better illustrated in the more extensive document.

4. The reader is directed to the document, Coping With Classroom Distractions: The Inservice Training Report, which details the San Diego IR & DT team's effort in this regard.

FIGURE 1

DATA COLLECTION GENERAL SCHEMA

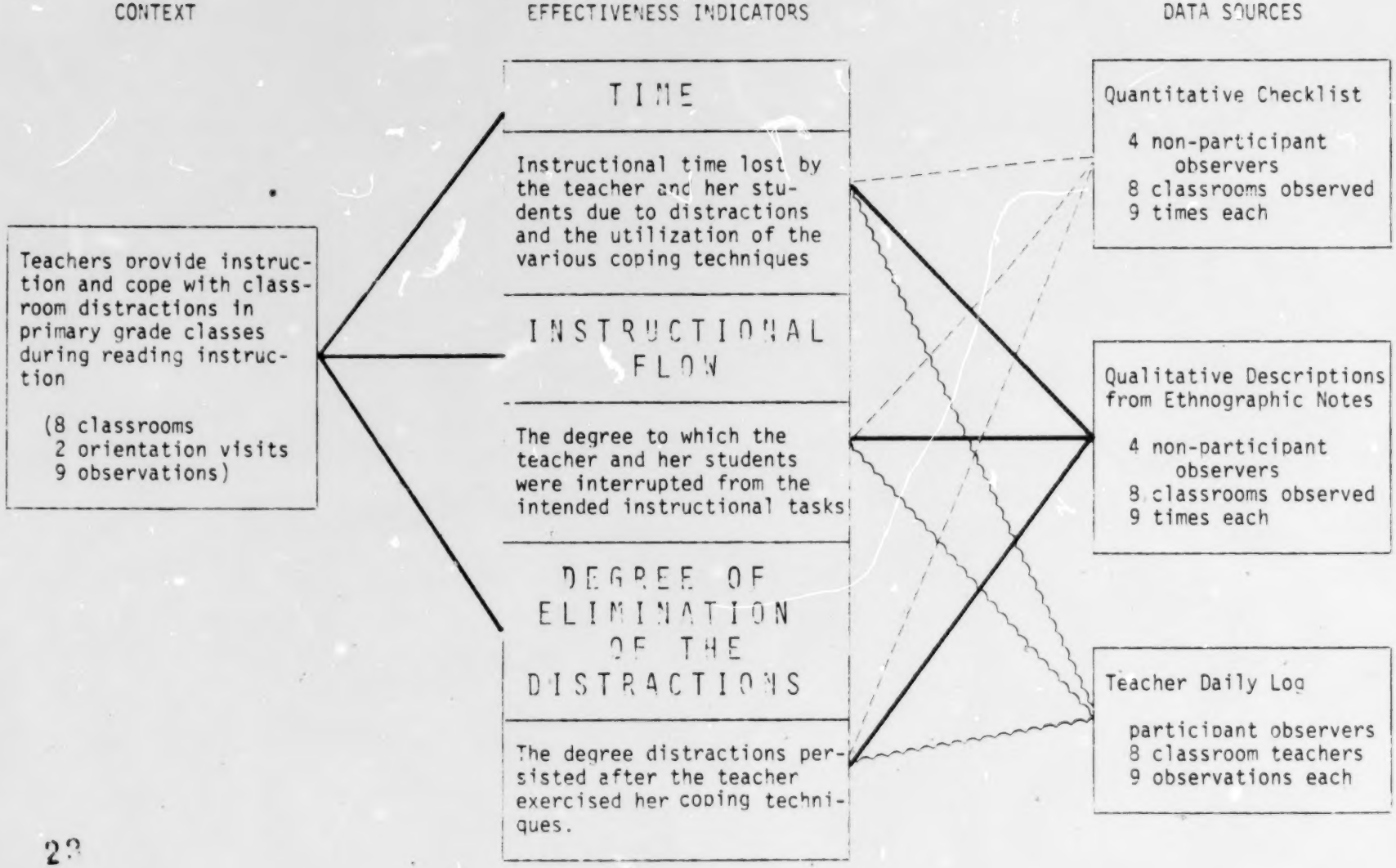

CONTEXT
EFFECTIVENESS INDICATORS
DATA SOURCES
Teachers provide instruction and cope with classroom distractions in primary grade classes during reading instruction
(8 classrooms
2 orientation visits
9 observations)
TIME
Instructional time lost by the teacher and her students due to distractions and the utilization of the various coping techniques
INSTRUCTIONAL FLOW
The degree to which the teacher and her students were interrupted from the intended instructional tasks
DEGREE OF ELIMINATION OF THE DISTRACTIONS
The degree distractions persisted after the teacher exercised her coping techniques.
Quantitative Checklist
4 non-participant observers
8 classrooms observed
9 times each
Qualitative Descriptions from Ethnographic Notes
4 non-participant observers
8 classrooms observed
9 times each
Teacher Daily Log
participant observers
8 classroom teachers
9 observations each

FIGURE 2

DISTRACTIONS TO CLASSROOM INSTRUCTION

REGULARLY OCCURRING			IRREGULAR OCCURRING
STUDENT GENERATED	SCHOOL GENERATED	OUT-OF-SCHOOL GENERATED	WITHIN CLASSROOM
11. Students verbally interrupting the teacher	21. Sensory distractions	31. Pre-announced visitors	41. Unexpected visitors
12. Student seeking clarification	22. Student movement due to out-of-classroom activities/programs	32. Special project-related activities (testing, recordkeeping)	42. Communications to the teacher
13. Student-student interactions which are disruptive	23. Clarification of instruction needed by others (non-students)	39. Other	43. Unexpected arrival or departure of students
14. General student noise	24. School management-related activities		44. Misc. student problems
15. Students not concentrating on classroom activities (not on task)	25. Teacher creates distraction		49. Other
16. Student's physical position or location	29. Other		OUT-OF-CLASSROOM
17. Student intentionally attempting to disrupt instruction or challenge rules			51. Upset parent visit
18. Physical disorders to the classroom environment or to students			52. Last moment activities (field trip, assembly, etc.)
19. Other			53. Speakers
			54. School photographs
			55. Student elections
			59. Other

TABLE 1

PERCENTAGE OF DISTRACTIONS OCCURRING* BY TEACHER, LEVEL AND COMBINED

OBSERVATIONS 1-9

TEACHER / GROUP (=)	DISTRACTIONS																	
	STUDENT GENERATED									SCHOOL GENERATED		IRREGULAR OCCURRING		SUB TOTAL	SUB TOTAL	SUB TOTAL	SUB TOTAL	SUB TOTAL
	11	12	13	14	15	16	17	18	19	21	25	41	42	11-19	21-29	31-39	41-49	51-59
A (535)	15.7	3.7	14.4	15.5	13.6	21.5	1.3	3.7	9.3	3.7	2.4	1.9	.4	90.5	4.7	.4	4.5	.0
B (350)	30.9	3.4	14.0	6.6	20.9	10.3	.3	2.6	.8	.0	3.1	.6	2.3	89.7	6.6	.0	3.8	.0
C (269)	28.3	3.7	12.2	4.1	16.7	13.4	5.6	4.8	.0	.7	4.5	.4	2.2	88.8	6.3	1.1	3.7	.0
D (339)	30.4	1.8	9.4	7.4	11.8	10.6	.9	.5	.0	7.4	4.7	2.7	6.5	77.3	12.4	.0	10.1	.3
LEVEL I (1493)	24.8	3.2	12.8	9.5	15.4	14.9	1.7	4.0	.5	1.9	3.5	1.5	2.5	87.0	7.2	.3	5.4	.1
W (547)	18.6	3.8	15.5	17.4	15.2	15.2	4.4	3.1	.7	.0	1.8	2.0	.0	94.0	3.5	.4	2.2	.0
X (450)	31.1	2.4	15.1	8.2	16.9	11.1	.4	2.2	.7	.0	7.8	.9	1.1	88.2	9.1	.0	2.7	.0
Y (246)	21.1	.8	22.0	13.0	16.7	4.1	7.7	6.5	.0	.0	.8	.4	.8	91.9	3.7	1.2	3.2	.0
Z (326)	27.6	3.4	6.7	2.5	19.9	23.3	.3	2.8	4.0	1.8	3.7	.3	1.5	90.5	6.4	.3	2.7	.0
LEVEL II (1569)	24.5	2.9	14.6	11.0	16.9	14.0	2.9	3.3	1.3	.4	3.8	1.1	.8	91.3	5.7	.4	2.6	.0
ALL TEACHERS COMBINED (3062)	24.7	3.0	13.8	10.3	16.3	14.5	2.4	3.6	.9	1.1	3.6	1.3	1.6	89.2	6.4	.4	4.0	.0

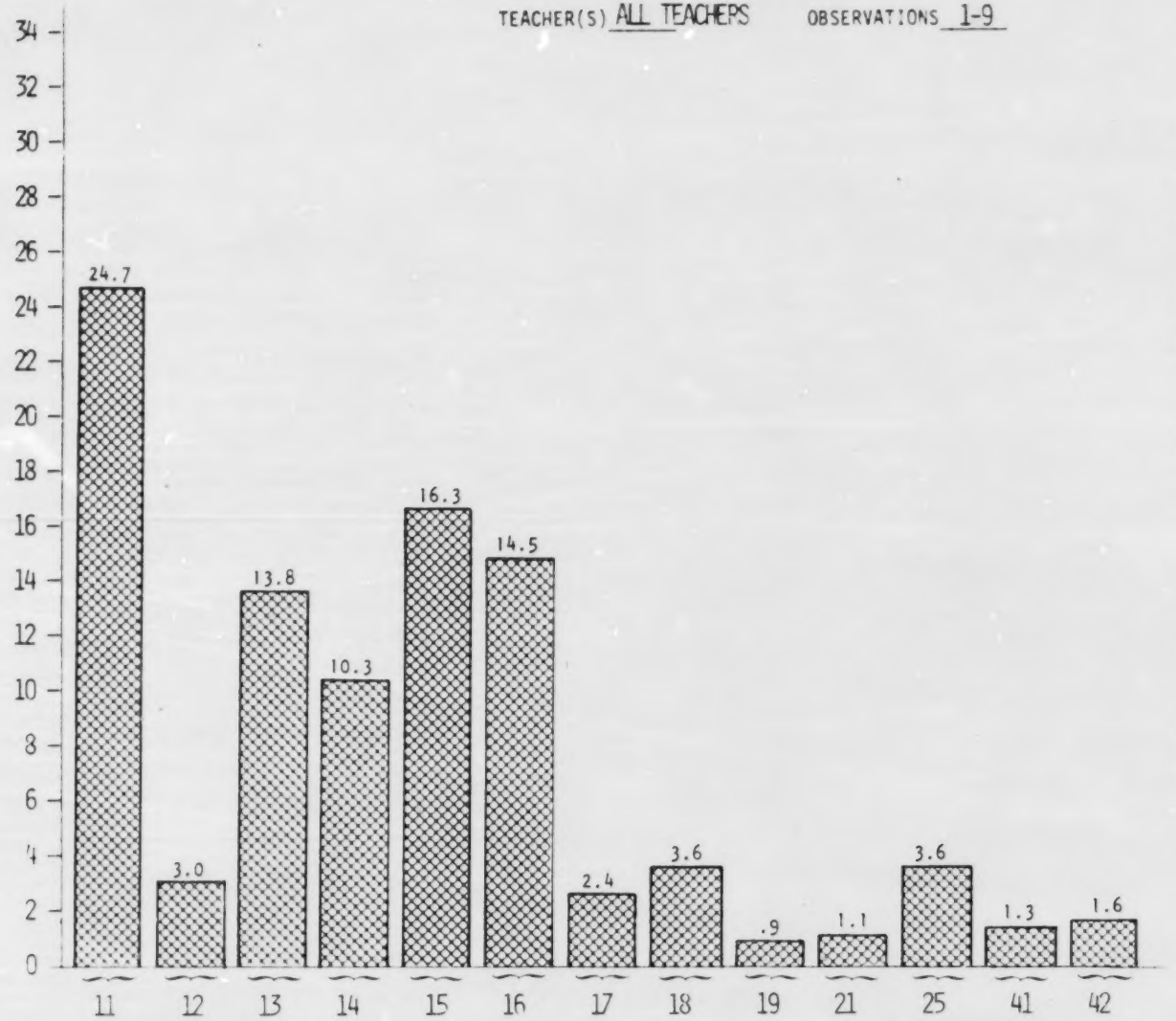
(=) = The number of distractions for that specific teacher or group.

*Only those distractions which accounted for at least one percent of the total are displayed.

FIGURE 3

DISTRACTION PROFILE

TEACHER(S) ALL TEACHERS OBSERVATIONS 1-9



DISTRACTION CODES

11. STUDENTS VERBALLY INTERRUPTING THE TEACHER
12. STUDENT SEEKING CLARIFICATION
13. STUDENT-STUDENT INTERACTIONS WHICH ARE DISRUPTIVE
14. GENERAL STUDENT NOISE
15. STUDENTS NOT CONCENTRATING ON CLASSROOM ACTIVITIES (NOT ON TASK)
16. STUDENT'S PHYSICAL POSITION OR LOCATION
17. STUDENT INTENTIONALLY ATTEMPTING TO DISRUPT INSTRUCTION OR CHALLENGE RULES
18. PHYSICAL DISORDERS TO THE CLASSROOM ENVIRONMENT OR TO STUDENTS
19. OTHER (STUDENT GENERATED)
21. SENSORY DISTRACTIONS
25. TEACHER CREATES DISTRACTION
41. UNEXPECTED VISITORS
42. COMMUNICATIONS TO THE TEACHER

FIGURE 4

COPING TECHNIQUES

ONGOING TEACHER ACTIONS		PREVENTATIVE AND/OR PREPLANNED
VERBAL	NONVERBAL	
11. Teacher giving direct command or instruction (telling)	21. Teacher using body language, gestures and/or facial expressions	31. Reminding students of rules to prevent distractions from happening
12. Teacher complimenting positive behaviors or actions -- as an example of acceptable activities	22. Teacher moving or locating self with the classroom	32. Locating material or arranging classroom environment to reduce/prevent distractions from happening
13. Teacher clarifying or reminding students of rules (How it should be)	23. Teacher physically redirecting students' attention	33. Teacher using positive reinforcement techniques to encourage future appropriate behavior/actions
14. Teacher soliciting students to a behavior change by using varying voice techniques	24. Teacher calling attention to inappropriate behavior (signs, bells, etc.)	34. Teacher using other adults in the classroom to cope with or to prevent distractions
15. Teacher using varying patterns or clues to gain student attention	25. Teacher ignoring distraction (after exhibiting awareness of the distraction)	35. Class discussion of events which are yet to occur or of non-functional events which were disrupted
16. Teacher directing student to another person or location	26. Teacher showing how a task is supposed to be done	36. Teacher using students to help resolve distractions
17. Teacher putting distraction on hold	27. Teacher physically resolves distraction ("fixes it")	39. Other
18. Teacher telling how a task can be accomplished	29. Other	
19. Other		

TABLE 2

PERCENTAGE OF COPING TECHNIQUES UTILIZED*
BY TEACHER, LEVEL AND COMBINED

OBSERVATIONS 1-9

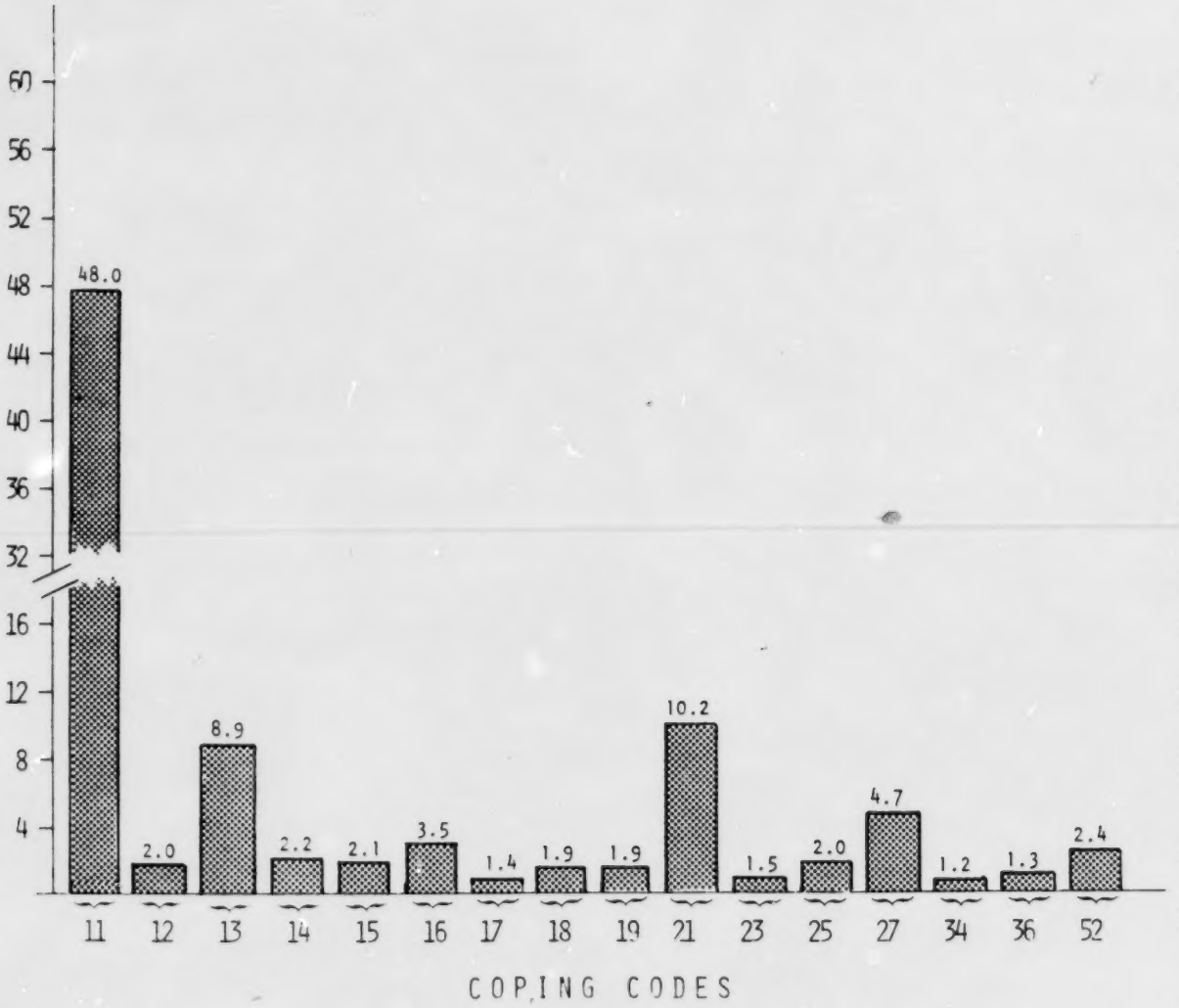
TEACHER / GROUP (#)	COPING TECHNIQUES																			
	VERBAL									NON VERBAL				PREV.		COMB.	SUB TOTAL	SUB TOTAL	SUB TOTAL	SUB TOTAL
	11	12	13	14	15	16	17	18	19	21	23	25	27	34	36	52	11-19	21-29	31-39	51-99
A (535)	34.4	4.5	14.0	2.2	5.8	4.3	1.3	.2	2.1	18.5	2.4	.4	3.0	.9	.6	3.6	68.8	24.7	2.6	3.9
B (350)	39.9	2.0	10.3	3.7	.6	3.4	1.1	.6	.9	12.9	2.9	1.4	7.8	.0	1.7	2.0	62.6	27.3	1.7	8.3
C (269)	45.5	1.1	9.7	3.0	3.0	4.1	3.0	4.5	.7	5.2	1.5	4.9	3.4	1.5	.7	.0	74.6	16.0	4.1	5.2
D (339)	48.7	.0	2.4	.3	.0	3.8	1.8	.6	7.7	13.0	.6	1.5	4.4	1.2	3.5	3.2	65.2	22.7	5.0	7.1
LEVEL I (1493)	40.9	2.3	9.7	2.3	2.8	4.0	1.7	1.1	2.8	13.5	1.9	1.5	4.6	.8	1.5	2.5	67.4	23.2	3.2	6.1
W (547)	45.6	2.4	14.1	1.6	1.5	3.8	1.5	1.8	.5	10.6	.2	2.4	2.7	3.3	1.3	4.2	72.9	17.0	5.3	4.8
X (450)	57.6	2.2	6.5	4.9	1.3	1.3	.4	3.1	1.6	5.6	2.5	.4	5.8	.2	1.1	1.1	79.0	15.4	1.6	4.0
Y (246)	60.0	.8	6.1	.4	1.6	5.3	1.6	3.7	.0	2.0	.8	6.1	6.1	.0	.8	.4	79.6	16.7	.8	2.9
Z (326)	63.5	1.2	1.8	.3	1.2	2.1	1.5	1.8	2.1	6.7	1.2	1.8	5.8	1.2	1.2	2.1	75.8	17.8	2.8	3.6
LEVEL II (1569)	54.8	1.8	8.1	2.1	1.4	3.0	1.2	2.5	1.1	7.0	1.1	2.4	4.8	1.5	1.1	2.3	76.1	16.6	3.0	4.2
ALL TEACHERS COMBINED (3062)	48.0	2.0	8.9	2.2	2.1	3.5	1.4	1.9	1.9	10.2	1.5	2.0	4.7	1.2	1.3	2.4	71.9	19.9	3.1	5.1

*Only those coping techniques which accounted for at least one percent of the total are displayed.
(#) = Number of distractions for that specific teacher or group.

FIGURE 5

COPING PROFILE

TEACHER(S) ALL TEACHERS OBSERVATIONS 1-9



CODES FOR COPING TECHNIQUES

11. TEACHER GIVING DIRECT COMMAND OR INSTRUCTION (TELLING)
12. TEACHER COMPLIMENTING POSITIVE BEHAVIORS OR ACTIONS -- AS AN EXAMPLE OF ACCEPTABLE ACTIVITIES
13. TEACHER CLARIFYING OR REMINDING STUDENTS OF RULES (HOW IT SHOULD BE)
14. TEACHER SOLICITING STUDENTS TO A BEHAVIOR CHANGE BY USING VARYING VOICE TECHNIQUES
15. TEACHER USING VARYING PATTERNS OR CLUES TO GAIN STUDENT ATTENTION
16. TEACHER DIRECTING STUDENT TO ANOTHER PERSON OR LOCATION
17. TEACHER PUTTING DISTRACTION ON HOLD
18. TEACHER TELLING HOW A TASK CAN BE ACCOMPLISHED
19. OTHER (VERBAL)
21. TEACHER USING BODY LANGUAGE, GESTURES AND/OR FACIAL EXPRESSIONS
23. TEACHER PHYSICALLY REDIRECTING STUDENTS' ATTENTION
25. TEACHER IGNORING DISTRACTION (AFTER EXHIBITING AWARENESS OF THE DISTRACTION)
27. TEACHER PHYSICALLY RESOLVES DISTRACTION ("FIXES IT")
34. TEACHER USING OTHER ADULTS IN THE CLASSROOM TO COPE WITH OR TO PREVENT DISTRACTIONS
36. TEACHER USING STUDENTS TO HELP RESOLVE DISTRACTIONS
52. COPING CODES 11 AND 21 COMBINED

TABLE 3

SUMMARY OF DISTRACTION-COPING LINKAGES

DISTRACTION X COPE

GROUP TEACHERS A-Z OBSERVATIONS 1-9

STAT. FREQUENCIES

Cope / Dist	11	12	13	14	15	16	17	18	19	SUB	21	22	23	24	25	26	27	28	29	SUB	31	32	33	34	35	36	39	SUB	51	52	53	54	55	56	57	58	59	SUB	GRAND TOTAL	COMMENTS
11	405	17	56	10	6	25	25	25	16	585	75		4	3	22		27		5	136				4		4		8	3	12	1	3	1		1	1	4	26	755	
12	37	3	12		1	4	9	14		80	4	1			2	3	3			13								0										0	93	
13	207	6	61	13	6	29		3	3	328	39	3	6		11		5			64				1		3		4	9	11	2	2	6				2	24	420	
14	110	15	47	6	14	6	1	2	1	202	52	1		12	3		5		1	74	1			5		3		9		16		1	8	1			3	29	314	
15	271	8	53	22	14	15	2	2		387	21	2	19	3	5	1	15			66	1			3	1	2		7	1	10	8	7	4			1	5	36	496	
16	250	6	28	10	18	10	3	2	2	329	50	2	11		8		10		1	82	1			1		2		4	1	19	1	2	4				0	27	442	
17	39	2	6	3	1	5		2	1	59	2		2		2	1				7						1		1	2	1				1			1	5	72	
18	49		4	2		3		3	1	62	14		1	1	1		21			38	1			1		4		6		2		1		1			1	5	111	
19	17	1	1			1			3	23	3									3	1					1		2									0	0	28	
SUB.	1386	58	268	66	60	98	40	53	27	2055	260	9	43	19	54	5	86	0	7	483	5	0	0	15	1	20	0	41	8	71	12	16	23	3	1	2	16	152	2731	(89.2%)
21	4									4	28				3					31								0										0	35	
22	6				1					7	5		1		1		2			9				1		1		2										0	18	
23	7							1	1	9	1						3			4				6				6										0	19	
24						1		1		2	1				1		3			5								0										0	7	
25	20	3		1	1	5		1	7	38	2	1			1		33			37	3	1	3	7		20		34			2						2	111	
29	3		1			1				5							1			1	1							1										0	7	
31	2									2					2					2				2				2										0	6	
32						1	1		1	3	1									1								0	1									1	5	
39										0										0								0										0	0	
41	13		1		1		1		7	23	10	1					3			14				2				2										0	39	
42	13		1				2		12	35	1				1		10			12				2				2	1									1	50	
43	7		1						2	10	2	1			1		2		1	7			1	1	2			4		1								1	22	
44	3		2					1		6										0								0										0	6	
49	1								1	2	1								1	2	1							1			1							1	6	
TOTAL	1471	61	274	67	63	106	44	57	58	2201	312	12	44	19	64	5	143	0	9	609	10	1	4	36	3	41	0	95	10	72	15	16	23	3	1	2	16	158	3062	
										(71.9%)										(19.9%)								(3.1%)										(5.1%)		

FIGURE 6

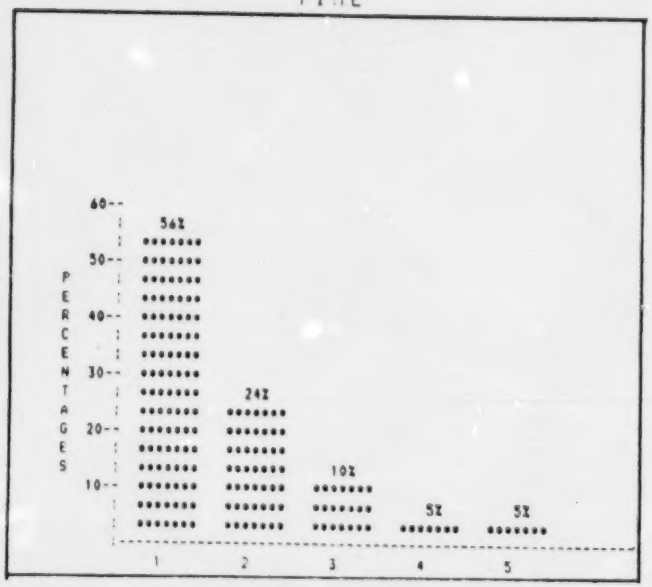
SUMMARY OF EFFECTIVENESS RATINGS

TEACHER(S) A - Z

OBSERVATION(S) 1-9

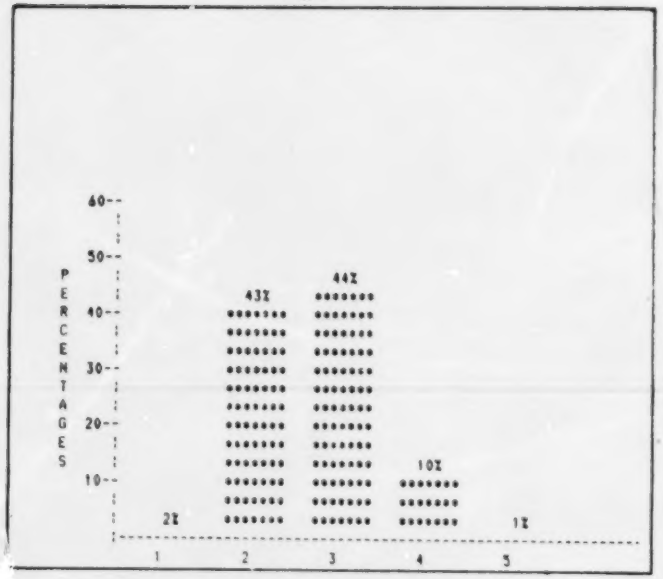
TOTAL NUMBER OF DISTRACTIONS = 3062

TIME



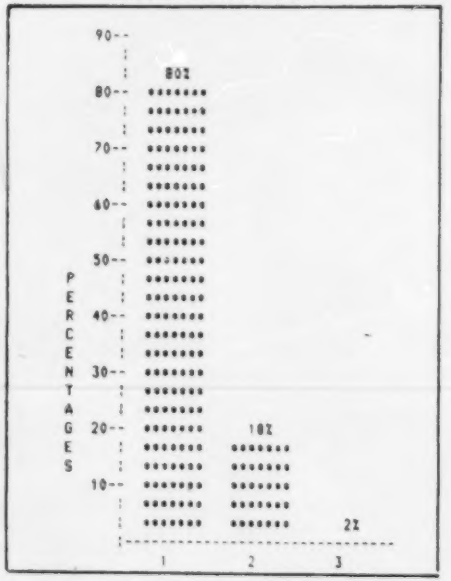
1 = LESS THAN 5 SECONDS
2 = 6 - 10 SECONDS
3 = 11 - 20 SECONDS
4 = 21 - 40 SECONDS
5 = MORE THAN 40 SECONDS

FLOW



1 = NO APPARENT BREAK IN THE INSTRUCTIONAL FLOW (DISTRACTION IGNORED)
2 = DISTRACTION MAINLY TO TEACHER; DOESN'T BOTHER STUDENTS
3 = MINOR DISTRACTION TO BOTH TEACHER AND MOST STUDENTS IN THE GROUP
4 = INSTRUCTION DISRUPTED, BUT TEACHER BRINGS THE GROUP BACK
5 = INSTRUCTION COMPLETELY DISRUPTED; VERY DIFFICULT OR NOT POSSIBLE TO BRING THE GROUP BACK TO TASK

ELIMINATION



1 = APPARENT ELIMINATION OF DISTRACTION
2 = DISTRACTION CONTINUES AT A REDUCED (ACCEPTABLE) LEVEL
3 = DISTRACTION CONTINUES AND TEACHER USES ANOTHER TECHNIQUE

-27-

FIGURE 7
SUMMARY DISPLAY OF THE MOST AND LEAST EFFECTIVE
DISTRACTION-COPING LINKAGES

DISTRACTION X COPE

GROUP Teachers A-Z, Observations 1-9

STAT. Relative Effectiveness

Cope / Dist	11	12	13	14	15	16	17	18	19	SUB	21	22	23	24	25	26	27	28	29	SUB	31	32	33	34	35	36	39	SUB	51	52	53	54	55	56	57	58	59	SUB	GRAND TOTAL	COMMENTS
11																																								
12																																								
13																																								
14																																								
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31																																								
32																																								
39																																								
41																																								
42																																								
43																																								
44																																								
49																																								
TOTAL																																								

Code: I,F,E, indicate Distraction-Coping Linkages which ranked most effective in TIME, FLOW and ELIMINATION, respectively.
i,f,e, indicate Distraction-Coping Linkages which ranked least effective in TIME, FLOW and ELIMINATION, respectively.
Titles and examples of distractions and coping techniques may be found in Appendix F.

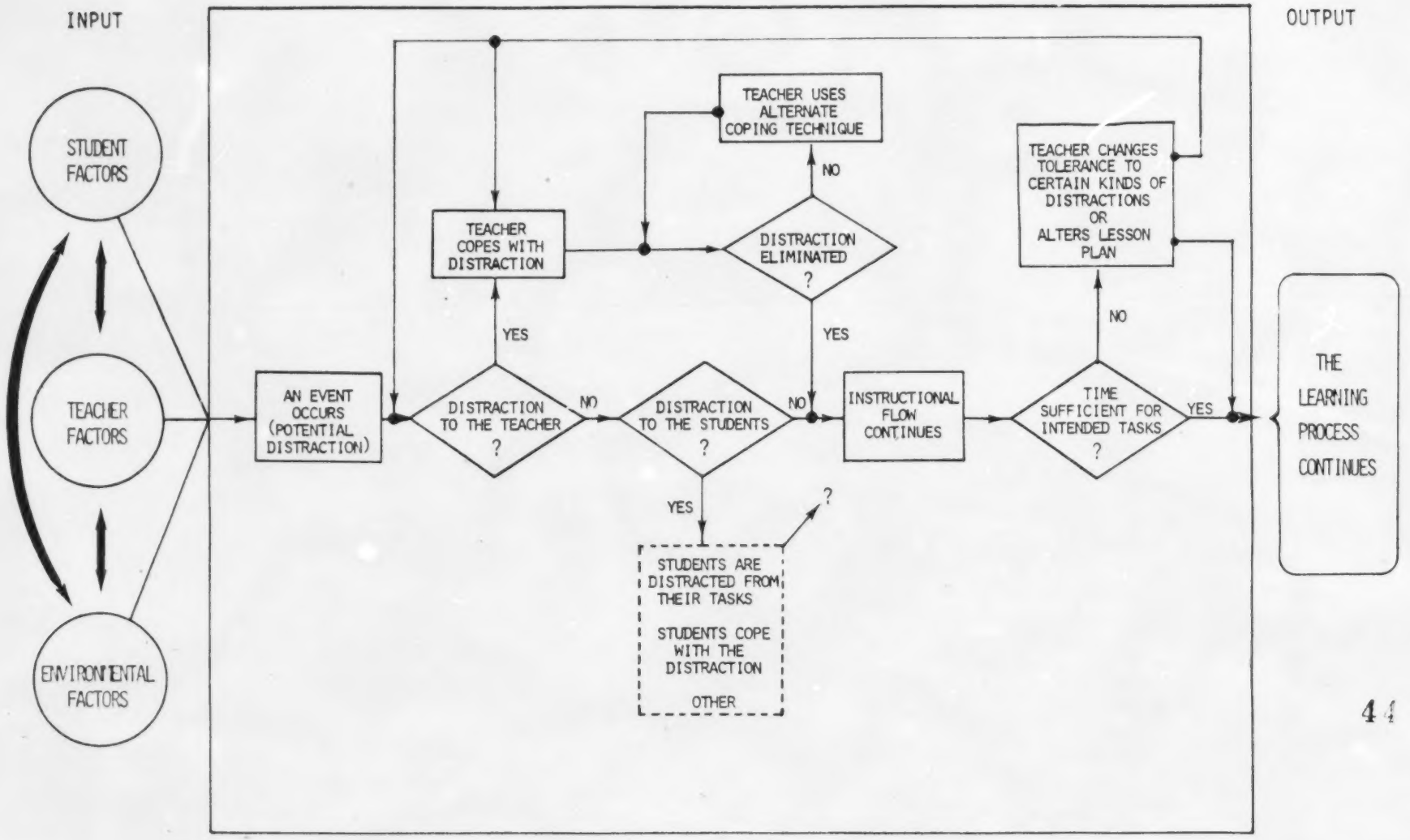
TABLE 4

INSTRUCTIONAL TIME LOSS DUE TO DISTRACTIONS
BASED ON QUANTITATIVE DATA AND TEACHER DAILY LOG ESTIMATES

TEACHER / GROUP	INFORMATION BASED UPON QUANTITATIVE DATA				BASED ON TEACHER LOG	
	AVERAGE NUMBER OF DISTRACTIONS	AVERAGE LENGTH OF OBSERVATION (IN MINUTES)	AVERAGE TIME LOSS (IN MINUTES) MID-RANGE ESTIMATE	PERCENTAGE OF READING TIME LOST DUE TO DISTRACTIONS	AVERAGE TIME TEACHER'S ESTIMATE	PERCENTAGE OF READING TIME LOST DUE TO DISTRACTIONS
A	59.4	58	9.8	16.9%	6.5	11.2%
B	38.9	60	5.5	9.2%	8.1	13.5%
C	29.9	56	3.9	7.0%	8.3	14.8%
D	37.7	56	6.2	11.1%	5.3	9.4%
LEVEL I	41.5	57.5	6.4	11.1%	7.0	12.2%
W	60.8	60	14.2	23.7%	14.3	23.8%
X	50.0	61	7.7	12.6%	4.1	6.7%
Y	27.3	55	4.5	8.2%	7.8	14.2%
Z	34.0	58	3.3	5.7%	5.4	9.3%
LEVEL II	43.0	58.5	7.4	12.6%	7.9	13.5%
ALL TEACHERS	42.2	58.0	6.9	11.9%	7.5	12.9%

FIGURE 8

A MODEL OF TEACHERS COPING WITH CLASSROOM DISTRACTIONS



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INTERACTIVE RESEARCH AND DEVELOPMENT:

THE PARTICIPANTS' VIEW

Cindy Chase
Horton School
San Diego Unified School District

in collaboration with

The San Diego Interactive Research & Development on Teaching Team

Janice Bennett
Jane Day
Charlotte Lazar
David Mittleholtz
Grant Behnke

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INTERACTIVE RESEARCH AND DEVELOPMENT:

THE PARTICIPANTS' VIEW

When the decision was made I would do this presentation, many thoughts raced through my head. What shall I say? How shall I say it? I felt a great responsibility for representing the whole San Diego IR&DT team. After much thought, contemplation, and brain-picking of the team, I have decided on these issues to share with you. In this paper I will present some of the insights that the San Diego team has gained as a result of its participation in the IR&DT process.

April marks the 19th month that the San Diego team has worked together. During this time the team has developed warm, interpersonal relationships. A mutual respect for the team members has also evolved. These relationships are considered by the team to be one of the most rewarding aspects of the study.

An important point to mention at the outset is the fact that throughout the entire study the team members had equal say in the decision making process. This certainly did attribute to successful and harmonious working conditions. The IR&DT is an ongoing learning process in terms of learning new skills and thinking in different people's perspective. We learned to be accepting of others' thoughts and to not force perspection of others.

One primary suggestion that came from the team is that the school sites of team members should be located in close proximity. It is important that team members do not feel isolated. At least two people should work at the same school. The more interaction there is, the better the communication. This interaction assists to make tasks better organized and thus more quickly

completed. Most importantly, team members then seem to feel mutual commitments to the study.

Determining the Research Question

When determining the research question, the team members discussed possible questions with their own and other school faculties. They also made classroom observations at their own and other school sites. It was found that interaction with non-participant colleagues was very essential in determining the question. These interactions broadened the team's awareness of possible research topics and confirmed which problems were pertinent and universal.

Classroom observations made the team aware that they needed to develop precise instruments and data collection procedures for the collection phase. Without focused observations, the observers would be overwhelmed by all the available data for collection. Also, far too much data would have been collected than could be analyzed.

The IR&DT team found these preliminary observations were not only worthwhile for the research project but also for personal growth. Every teacher should have the opportunity to make classroom observations. These observations give teachers new ideas for their classrooms. They also reinforce the good things already going on in their classrooms.

Another suggestion from the team is that the question should be determined in the spring of the school year. This would allow for the research design to be developed before the opening of school. The beginning of the school year is such a busy and important time for setting up classroom standards and procedures, which set the precedent for the entire year. Many potential areas for research were excluded due to our timeframe.

Formulation of the Research Design

During the formulation of the research design, the team would have liked more time. The team suggests a larger proportion of time be allotted to this phase of the study. The team needed more time for field testing the instruments for the collection process and for the refinement of these instruments. Also, more time was needed for the training of the observers.

Perhaps the writing of the research design could have been accomplished more quickly by the researcher alone, but the team members feel that the team interaction created a better product.

After the research design was written, the design was submitted to the National Advisory Panel (NAP) for review. The panel's critiques were most worthwhile. However, the team regretted that it was not able to discuss these suggestions personally with the panel and receive further valuable clarification.

Data Collection

While in the data collection phase, the team discovered that support personnel were very essential. The team would have liked additional assistance to carry out such clerical tasks as transporting data to the computer, and filing and organizing the computer printouts and ethnographic transcripts. Future research teams should consider this fact and budget for the necessary personnel to make the mechanics of the research more easily managed.

Data Reviewing

The data collection phase of the project included nine days of observations. After the first six observations and data collection, each of the eight classroom teachers participated in two data reviewing sessions. These sessions were intended to provide feedback on the preliminary data which had been collected during the first six observations. The participants of the study identified

specific techniques which appeared to be functional and the teachers developed plans to modify their coping styles. There was a three-week interval between the sixth and final three observations. During this time interval the teachers implemented their plans to modify their coping styles.

One suggestion from the team is that a quick daily checklist is needed to remind the teachers of the coping techniques they intended to make. The teachers found that their daily teaching activities kept them so busy that many times they forgot about their plans for change.

The teachers discovered it was easier to change physical or pre-planned management items than teaching styles. The teachers would have liked more time to assimilate changes in teaching styles and to work on changing coping styles.

Analysis and Writing

The data analysis and study writing was very tedious and time consuming. It was fortunate it was conducted during the summer. The team would not have the available time for such a task during the school months.

During the analysis and writing phase, the team worked together almost daily in a classroom bungalow. The team found it was very important to meet with the other team members in a central location. It gave the team members the opportunity to interact with each other. It also established continuity in the case studies.

The teachers sometimes disagreed with the quantitative data. Some subtle coping techniques were not picked up by the quantitative checklist as often as teachers thought they had used them. Frequently, the ethnographic notes helped support the teacher's conclusions. The team feels ethnographic and quantitative data should be used to complement each other.

The classroom observers who collected data for data collection phase also

played a vital role during analysis. They gave valuable, objective viewpoints and gave clarification when needed. Each of these observers had previous classroom experience, which assisted with many of their perceptions.

The team is grateful for the professional writers who helped to edit the case studies. None of the teachers were experienced writers and felt relief knowing professional writers would be editing the case studies.

The team feels it is most important that the researcher be present during the writing phase. He is needed to give assistance as to the most efficient ways to accomplish tasks. During this time, our researcher was frequently busy writing the Evolution of the Study, helping with the data analysis, and assisting in the writing of the case studies. This was a large task. The Evolution of the Study should be written at a later date.

The research process was much more time consuming than the team expected. The Far West Laboratory was prudent in taking the team through the process phase by phase. Presenting the whole process in great detail at the outset would have discouraged some of the participants from becoming committed to the research process.

In the team's effort to efficiently use its time, it made time lines to accomplish the tasks set by the Far West Laboratory. These time lines gave our team meetings a more productive structure and kept the meeting task oriented. An agenda was always used as a guide line for our meetings. These techniques assisted in maintaining good team morale.

In general, the team would like to see more time for the whole research process. Specifically, more time was needed for such tasks as writing the research design, training the observers, and for changing coping styles.

Participation in the research study has been very valuable for

investigating and drawing conclusions about teaching styles and problems in the classroom.

Giving teachers the opportunity to comment on findings increases the accuracy of the reporting of research. Educational research has a better future with teacher involvement.

INTERACTIVE RESEARCH AND DEVELOPMENT: PROCESS, PRODUCT, AND CONSEQUENCES OF IMPLEMENTATION

Gary A. Griffin

Teachers College, Columbia University

Interactive Research and Development on Teaching (IR&DT) is one project of the Far West Laboratory for Educational Research and Development (FWL). IR&DT is a strategy that places teachers, researchers, and trainer/developers together on a team to inquire into those questions, problems and concerns of the classroom teacher. Decisions are to be made collaboratively regarding research issues and strategies and the concurrent development of training that grows from the research. Each member of an IR&DT team has parity and shares equal responsibility for decisions, from identification of the research question to the completion of all resultant research and development activities.

The purpose of this paper is to report preliminary and selected findings which have emerged as a consequence of an intensive study of the initial implementation of IR&DT. The three foci for the report are: the interactive process, judgments regarding the products of IR&DT, and the consequences of enacting the strategy. The findings presented herein have been selected from a more comprehensive report which will be available in the summer of 1979.

The Sites and the Participants

Three elementary schools, one state university college of education, one

The work reported in this paper was supported by the National Institute of Education, Department of Health, Education and Welfare, begun under Contract NE-C-00-3-0108 and continued under Grant OB-NIE-G-78-0103. The opinions expressed do not necessarily reflect the position or policy of the National Institute of Education and no official endorsement by the National Institute of Education should be inferred.

essentially urban large school system, and one loosely connected federation of small independent schools comprise the institutional contexts within which the interactive project team members enacted IR&DT. These settings are the institutional "homes" of the members of two teams which participated in the implementation of IR&DT.

The California team members are all on the staff of a large, urban unified school system which serves the ninth largest municipality in the United States. The system enrolls 64,107 elementary students in 122 schools. The elementary students are classified as 66% white, 14.5% black, 14% Hispanic, 5.2% Asian, and the remainder "other." These students and their schools are distributed over a 195 square mile area. (In that the IR&DT team was located within the elementary school unit of the school system, only that unit will receive attention in this paper.)

Two elementary schools were represented on the California team by virtue of teachers selected from them to participate. School I is located in a lower socio-economic status community within the California system. The students are primarily black, with some Spanish-surnamed and few "other" ethnic representatives. There was a Title I program operating in the school as well as a Follow Through project. There is a high turnover of students during and at the close of each year. Many of the children live with only one parent. The school is looked upon as an exemplary one by district administrators, the principal, and the teachers in the school.

School II, also located in the large California district, is very different from the one just described. This school is large, 1200 students, and located in an upper middle class community some distance from the center of the district. The students are predominantly white, with some Filipino students and few blacks. There is strong cooperative parent involvement in

the life of the school and the pupil population is stable from year to year and during school years.

The researcher and trainer/developer participants in the California IR&DT team are also members of the school district. The researcher is affiliated with the evaluation office of the district and the trainer/developer with the inservice education component of the district.

The other IR&DT team was located in the state of Vermont. Teacher members of the team all work in a small elementary school which is part of a "supervisory union school district" which is comprised of seven separate districts, each with its own board of education but served by one superintendent and superintendent's staff.

Regarding the population served by the school, there are usually approximately 130 children in the school each year, in grades Kindergarten through Four. They come from failies where the principal employer is a large corporation and from families headed by persons in the service fields in nearby towns.

The researcher and trainer/developer on the Vermont team are faculty members of a nearby state university's college of education.

The teachers on the two teams are all female. Of the seven, three are married and three are single. Of the married teachers, each has children. The teachers report that they do not read popular magazines, newspaprs, or journals extensively. When asked about hobbies or avocational interests the dominant response pattern was one of outdoor, active interests such as tennis, camping, jogging and so forth. Five of the teachers earned their Baccalaureate degrees at local colleges. Only two teachers have earned degrees beyond the B.A. Both of these teachers were on the California team. All of the teachers have taken inservice courses offered by their respective districts.

The California teachers reported a high level of attendance at such courses whereas the Vermont teachers report attending them only occasionally. The California teachers report upon these experiences positively. (It should be noted that the California district has a long history of providing professional growth opportunities for members of the district. Such is not the case for the Vermont district.)

The California researcher completed his doctoral dissertation during the implementation period. In addition, he has spent four summers studying at a university other than the one which granted his doctorate. The Vermont researcher holds a Ph.D. from a New York university.

The two participating trainer/developers earned undergraduate degrees at local state colleges. Each has a Master's degree and units beyond, with the Vermont developer enrolled in a doctoral program.

All but two of the members of the teams believe their undergraduate training to be inadequate in that the preservice programs were lacking in utility for acting out their school roles. Those persons with advanced degrees, however, are strongly positive about the programs of study in which they engaged.

The Interactive Process

Data related to the process of enacting IR&DT were derived from direct observation, audio recordings of all team meetings, and interviews with participants. These data were coded and analyzed so that understanding of the nature of team interaction could be described and understood.

Conclusions regarding the interactive process, drawn from a much larger body of such information, are presented below.

1. In alignment with one of the initial specifications for IR&DT, teacher members of each of the teams participated extensively in all stages of the

process. Despite some preliminary misgivings that teachers might be somewhat intimidated by the implicit, if not explicit, status differential among educational backgrounds and professional positions of researchers and trainer/developers, teacher members contributed greatly to both decision making and to formulation and reflection.

2. Researcher team members participated in team meetings more extensively than any individual team members. The nature of this extensive participation differed for the two individuals, however. The Vermont researcher displayed what might be termed human relations behaviors which focused upon helping team members feel comfortable and a part of the team. The California researcher participated principally as a source of research knowledge and skill, although he did not ignore group process issues.

3. The more experienced teachers on both teams tended to participate more extensively in discussion than teachers with less experience. When one examines the nature of the teacher talk, there is a sharp difference between the two teams. The California teachers' talk was much more focused and IR&DT-relevant than was the Vermont teachers'. One way of noting the distinction is to characterize the California teachers as businesslike and the Vermont teachers as social. When one considers the prior experiences in like activities, federal and state projects and the like, one notes that the California teachers had had much more exposure to the intellectual and energy demands of such work. The Vermont teachers had had little exposure to these demands. Also, it will be remembered that the California teachers participated extensively in district-provided inservice education opportunities than did the Vermont teachers. One could speculate that the focus differential is a product of prior experience in like activities and that successful IR&DT interaction by teachers is somewhat dependent upon having had the opportunity to practice appropriate interaction.

4. The teachers' role perspective was far more influential upon the research issue to be studied than the other two role prspectives. This is consonant with the initial assumptions about why IR&DT should be implemented. It is apparent from the data that the research questions were originally formulated by teacher members of the teams and that the refining and shaping of the issue was also largely influenced by teachers.

5. The most time-consuming activity, in terms of deliberation, engaged in by both teams was the selection, formulation, and modification of the research question. Lists of questions were generated. The lists were subjected to speculations regarding validity, generalizability, utility of potential findings, methodological possibilities, and the like. The California team was more efficient, in terms of time and human energy, regarding this step of the process than the Vermont team. As noted earlier, the Vermont team was characterized as more social than the California team. This, certainly, contributed to the time/energy differential. Another factor which is considered to be related to the difference is the early decision by the California team to validate their question by informal interviews with colleagues and through observation in classrooms. The observations verified the importance of their research issue and clarified their focus as well as provided information which was subsequently used to make methodological decisions.

6. Teachers on both teams initially resisted the strategy of observing in other classrooms as a means toward clarifying their research questions. Although release time was provided for the teachers, it was with some reluctance that they left their own classrooms. Despite this reluctance, every teacher reports that the opporunity to observe other teachers was one of the most powerful benefits they experienced. The benefit was expressed both in terms of

research and development issues and in terms of individual consciousness raising and professional growth.

7. Both teams can be characterized as being proud of their work. The interaction in formal team meetings reveals the sense of accomplishment teachers feel when they are "in charge" of an activity with implicit, if not explicit, high status in the educational community. Although both teams encountered difficult methodological problems, particularly related to analysis of data, teachers expressed their confidence that the problems would be solved by the team. This confidence grew in incremental degrees over the course of the implementation period which began with every teacher expressing doubts about whether she could really be a contributing member of the team.

8. Accompanying the growth of confidence of all team members was the growth of the commitment of time and energy to the process. It is highly likely that none of the team members had a realistic conception of the demands participation in IR&DT would make upon them. Indeed, the FWL staff knew little more about this than the team members. It is interesting to note that at no time did the generally high level of participation lag for most participants. In the instances where it did falter, the reasons appeared to be overcommitment in other areas of professional activity rather than lack of interest.

9. The two teams were provided with orientation sessions regarding the nature of conducting educationalresearch and development efforts. These sessions provided information regarding a variety of research methodologies and paradigms. Also, a sequence of research formulation decision points was presented to the teams as a means to sort out the activities necessary to the conduct of good research. The two teams differed markedly in the manner in which they enacted these steps. It was apparent that the California team

moved through the steps in a close approximation of their presentation by FWL staff during orientation. The Vermont team, on the other hand, was far less systematic. As noted before, the combination of a group whose behavior was often more social than businesslike with backgrounds which did not include like experiences can be speculated as promoting less systematic behavior.

10. The interaction with other persons concerned with education-related issues was considered highly positive by all team members. In follow-up interviews it was revealed that this positive reaction was not just concerned with the personal characteristics of team members. Every person interviewed noted in some fashion that the interaction had caused professional growth, greater understanding of important issues, a higher and more powerful level of reflection on work activities, and a sharper attention to the complexities of classroom interaction.

11. Although this report has discussed teacher members of the IR&DT teams most frequently, it should be noted that the interactive process appears to have affected the researcher and trainer/developer members equally powerfully. Analysis of audio recordings and interviews reveal that researcher and trainer/developer on each team believe their participation increased their sensitivity to school problems, sharpened their understanding of these problems, helped them to reconceptualize their ideas about teachers and teaching, and caused them to think differently about their professional relationships with teachers and schools.

As noted earlier, these descriptive statements are selective and representative of a much larger set of conclusions about the interactive component of IR&DT.

The Products of IR&DT

Products is the term used to designate the research and development activities,

presented in the form of reports, of the two teams. Each team prepared a formal report of the research conducted and the developmental activity which emerged out of the research. The reports were subjected to an elaborate system for judgment. The system had three components: Juries were convened and directed to draw up a critique of the reports; experts in the fields of research, development, and teaching were asked to respond to questionnaires specifically designed to determine the quality and utility of the reports; and team members nominated "like" and "unlike" role counterparts to respond to the questionnaires used by experts in the fields.

The conclusions noted below are drawn from the responses to the questionnaires only. These conclusions are representative of a larger body of such judgments which will be made available in the final report of the implementation period.

1. Judgments from teachers were very high for the California reports and, although high, somewhat lower for the Vermont reports. The teacher judges reported that they were enthusiastic about the involvement of teachers in the conduct of educational R&D, that they would like to participate in such activities, that the reports were different and better than ones they had read before, and that the preservation of the natural ecologies of the classrooms studied was a major asset of both reports. The principal distinction between the judgments for the Vermont and California reports rested in the nature of the issue studied by each team. The California topic, classroom distractions and teacher coping strategies, was seen as potentially more useful to teachers than the Vermont study of the relation between teacher mood and supportive instructional behavior. Also, the California report received more comments indicating an immediate positive response to use the procedures and findings than did the Vermont report.

Both reports include qualitative data drawn from ongoing classrooms. Not

surprisingly, these protocols of classroom life were seen as interesting and informative by teachers engaged in judging the reports.

2. Trainer/developers who judged the reports were generally positive about them. Again, the California products were judged slighly higher than the Vermont products. As in the case with teacher judges, the principal difference seems to lie in the issues studied by the two teams, with the California issue being the one seen as more useful and productive for acting positively upon classroom life.

The trainer/developers responded very favorably to the processes of interaction contained in the reports. In almost every instance, the judges indicated that they would use the process in working with teachers and others on teaching problems. Further, the involvement of teachers in the formulation and implementation ofthe R&D activities was seen as a major contribution to the team efforts as well as to professional development in general. This involvement, according to several of the judges, was the reason that the R&D was both different and qualitatively better than like efforts conducted by university persons.

3. Judgments from researchers revealed the sharpest differences of opinion about the two reports. The California report received consistently higher ratings by the judges. The principal reasons for these differences appeared to be rooted in the ways in which the initial research questions were viewed. The California question was seen as important, real, and useful whereas the Vermont question was seen as somewhat vague and less central to the problems of classroom life. This difference persisted in the judgments related to the methodologies employed by the teams. The California team was congratulated for a unique and highly appropriate methodology whereas the Vermont team was criticized on the grounds that the methodology was less than adequate to the task.

4. Because IR&DT has been presented as a proposal for an alternate means for conducting educational R&D, it was considered necessary to ask researchers if they would use the products of the process as examples of good research. Both reports received favorable responses to this question, with California receiving a slightly more positive expression.

5. Researchers were asked if they would use the interactive process as a means to conduct research on teaching. The responses ranged from "definitely" to "yes, with reservations." It is interesting to note that researchers who judged both reports tended to respond to the question differently depending upon which report they had just read. The response for the California team was more positive than for the Vermont team indicating a relation between the perception of the process and a specific product of that process. Obviously, it's easier to endorse a set of procedures when those procedures have some relation to a piece of work already judged as being of high quality.

6. There appeared to be few differences in the judgments of researchers nominated by team members as "like" or "unlike" themselves. That is, although certain persons were seen to be markedly different in research orientation from the team researchers, they judged the reports as positively as did researchers seen as being similar in orientation to team researchers.

7. There appear to be some differences between researchers who are university or R&D center-based and those who are school-based. The school-based persons responded consistently more postively to the IR&DT efforts than did those whose workplaces are apart from school systems.

8. Researchers, as was the case for teachers and trainer/developers, agree that the involvement of practitioners in R&D related to the practitioners' work is desirable and effective.

Overall, then, the work of the IR&DT teams was judged as being of high quality and potentially useful for teachers and trainer/developers. Researchers, although positive about the work, were less so than were the other two groups of judges. Also, the process which informed the work of the two teams was seen as a good one by all three groups of judges, although, again, researchers were slighly less enthusiastic about adopting or promoting it as an alternative means to conduct educational R&D.

Consequences of the Implementation of IR&DT

It is possible to look at the consequences of using IR&DT as an inquiry mode from several perspectives. For this paper, the following perspectives have been selected: Consequences in terms of professional growth of participants; consequences in terms of knowledge production; and consequences in terms of personal and institutional demands and adaptation.

It has been noted earlier that participants in the implementation of IR&DT report that the efforts resulted in professional growth. These self-reports, combined with data drawn from audio recordings and IR&DT-specific questionnaires, reveal that professional growth can be noted in the following manifestations.

1. Greater awareness of educational options and possibilities
2. Greater understanding of educational R&D by all participants, not just teachers
3. Increased ability at problem identification
4. Increased level of collegiality
5. Expanded sense of roles other than one's own
6. Higher skill levels in terms of research requirements
7. Greater sense of professional worth
8. Heightened sensitivity to the possibilities of systematic inquiry
9. Commitment to professional self-reflection

10. Increased cosmopolitanism

11. Modification of practice

12. Clarification of the complexities of schooling

Regarding consequences directly related to knowledge production, the two IR&DT teams inquired into two quite different issues, formulated different methodologies to conduct the inquiries, and implemented teacher education activities which emerged out of both the process and product of IR&DT. (Although it has not been discussed, it should be noted that both teams chose aspects of the interactive process to be central to the teacher education activities they developed. In both sites, the inservice opportunities recreated, in differing degrees, the team approach to inquiry and problem solving.) The knowledge generated through the research activities has been judged by experts in the field as being positively contributory to what we know about teaching as an activity. Further, that knowledge is seen by experts as being potentially useful to teachers, researchers, and trainer/developers. Although the research and development of the two teams were judged to be qualitatively different, both sets of efforts were judged positively.

We can say with some confidence, then, that the consequences of IR&DT in terms of knowledge production are positive contributions to the field.

In terms of the consequences of IR&DT for participating individuals and institutions (beyond professional development), several statements are possible. As noted earlier, the time and energy demands are considerable and anyone entering such an endeavor should be aware of this. We believe now that the expectation that a complete R&D cycle should be completed in a fifteen month period is unreasonable. Given the study of these two teams we would increase the length of time to a period closer to twenty-four months. Related to time is the difficulty which arises when institutions engage in

collaborative efforts. Every institution has its own rhythm. In the IR&DT implementation this was dramatically illustrated by funding cycles, school calendars, university holidays, payment periods and the like. It should be understood that all participants must negotiate and renegotiate these rhythms in order for the work to go forward.

Also, institutional demands and expectations compete for team members' time and energy. Although team members were assurred of fewer committee assignments, reduced workloads, and the like, it was not uncommon for participants to find they were occasionally working full-time at IR&DT and full-time at their usual responsibilities. Some accomodation must be agreed to so that IR&DT can work and so that the institution can move forward with its agenda.

An only partly-answered question is whether or not IR&DT can be institutionalized as a regularity within a school system or a college or university. Although the California school system, through several of its insitutional authorities, has indicated an eagerness to use both process and product of IR&DT as both inservice vehicle and school problem solving mode, we are unsure as to how this commitment will manifest itself. In like fashion, persons at the Vermont college of education have indicated expectations that the IR&DT mode will become a part of the school's teacher education program. Again, we must await the evidence that this will take place and become a part of "business as usual."

Conclusion

This paper has discussed several aspects of the implementation of an alternate means for the conduct of educational R&D. The scope of the paper has been limited by the occasion for which it was prepared and by the point in time when it was written. A more detailed and comprehensive report, as noted earlier, will be forthcoming.

It is hoped, however, that the assertions and conclusions put forward in the paper provide evidence that IR&DT is, indeed, a reasonable alternative to conventional research and development efforts and, further, that the strategy has promise for promoting professional development of educators and for school problem solving.

AERA IR&DT SYMPOSIUM
Discussant Remarks

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Serving as a member of the National Advisory Panel for IR&DT for the last two years has been a unique and valuable experience for me. I have been able to watch the collaborative process unfold and to experience at close hand the excitement of the participants in this venture.

The idea of collaboration has been talked about frequently. . .the idea has been around for awhile. Still we have had, up to now, very little information about the processes involved. One great value of the IR&DT experience is that there is now documentation and some excellent roadmaps for those will follow.

In our work with teachers at the Texas R&D Center, we found that one of the most evident reasons for failure to translate or to communicate research findings meaningfully for teachers was the lack of a shared language of the classroom and an understanding of classroom events. This lack of a language, a set of background experiences between many trainers, researchers, and classroom teachers, contributes to the feelings of isolation which teachers often express. I am encouraged that these problems of language can be bridged. IR&DT as experienced by the San Diego and Vermont teams seems to have come a long way toward ending this isolation. The process is as important as the end products in this and other instances.

I would like to entertain some questions though. One that is of particular interest is, How do the participants change as a result of their experience? Do classroom teachers remain classroom teachers? Has participation in the IR&DT project had lasting effects upon all participants and

how they view their roles. . .how they do their jobs?

I would like to make two points. The first has to do with the development of the research questions. In the case of the San Diego team, the question was tailored to the energy level and resources the team had available. Finding answers to their question was a managable task. Still, how must the IR&DT strategy be adapted to the study of broader questions such as school responses to desegregation or evaluation of new curricula? What adjustments would there have to be in the process? Can IR&DT be appropriate for these kinds of inquiry? I suspect that the answer is "yes," but we would need to know how the process will or should change based on what we have learned so far. This is certainly a profitable direction that others might explore in the future.

A final point. Here, of necessity, we have concentrated our attention on three principle actors/actresses: the teacher, the teacher trainer, and the researcher. We have not speculated about what IR&DT might look like when implemented at the school level, the district level, or even the state level as a strategy for problem-solving. This leads to interesting questions. How would the formation of the questions to be pursued take place? Who might be included on these teams? Principals, curriculum coordinators, resource specialists, superintendents, area supervisors, parent, school board members? This is a potentially exciting possibility to be explored as we look for ways to tackle the problems of schooling.

INTERACTIVE R&D ON TEACHING

AERA Symposium Discussion Paper
G. Charlette Kennedy
April, 1979

I am going to begin with the assumption that researchers systemmatically discuss a project such as the San Diego IR&DT in terms of such things as its methodological procedures, data reduction and analysis, reliability and generalizability. On the other hand, public school practitioners, such as myself, are systemmatically concerned with a different dimension of a research study--its usefulness. My point is not to place statistical rigor in counter-opposition to usefulness, but rather to point out that even after the criteria for "robustness" in <u>any</u> study have been met, teachers such as myself ask an additonal set of questions about research.

As I read the study report, I was concerned first with the applicability and utility of the study findings. Secondly, I focused on the general benefits of the study to the teachers involved. Finally, I looked at the study in terms of its potential for advancing our knowledge about teaching and learning. In the time available, I will only discuss one set of criteria questions which are related to the study--teacher benefits.

IR&DT is uniquely valuable with respect to the long-term professional skills that were demonstrated by the teacher participants. For example, teachers' observation, documentation, and interpretative skills were sharpened as a result of the research experience. Such skills do not quickly become obsolete.

The non-linear inquiry mode typified by IR&DT optimized teachers' willingness to seek out and apply research-based information to their classrooms and to become familiar with other research findings. Hence, IR&DT

enhanced the ability of these teachers to act as "feedback agents" for the research community.

I do think the study might have benefited from the inclusion of minority persons on the IR&DT reseach team. The portrayal and interpretation of students' behaviors as distractive might have been viewed differently from other cultural perspectives. More importantly, however, some culture specific techniques and strategies for managing classroom distractions might have emerged with the inclusion of minority research team members especially at the stage of training.

What does it mean if we have articulate, informed practitioners? What is there to be gained? IR&DT and similar collaborative research models have some important consequences for several members of the educational community--researchers, policymakers at the federal and state levels, and school personnel.

Researchers

Criteria for judging teacher effectiveness is frequently based on student outcome measures. IR&DT data suggest that there may be some other powerful criteria for distinguishing the experienced from the inexperienced teacher.

Important patterns of behavior and interactions have been identified which increase or inhibit instructional effectiveness. Also, those behaviors and interactions which are successful remedies in long- and short-term situations have merged.

The IR&DT inquiry mode encourages change and certainly teachers' willingness to change has been carefully documented. As an informational intervention IR&DT is a viable alternative to intervention in experimental paradigms.

State and National Policymakers

IR&DT teachers have brought a new perspective to teaching and learning. They have demonstrated their ability to communicate with the research community in mutually understandable terms and are further able to translate, interpret, and "package" research findings for other public school practitioners.

As policymakers at the national and state levels begin to think about actively including teachers in the policy decision-making process, some careful attention should be given to the selection of criteria for these individuals. Teachers who have participated in collaborative research experiences as researchers and/or co-investigators possess subtantive knowledge and process skills as well. Teachers who have worked collaboratively with researchers should be included in the reading and review proposals and in the project evaluation process.

School Personnel

Few attempts have been made by school personnel to explicate the numerous linkages between classroom setting and student performance with respect to "time-on-task." While numerous Parent Effectiveness Training classes have sprung up recently, rarely are parents instructed in how to provide effective learning support for their youngsters. Moreover, as more public pressure is exerted for accountability, the need and the opportunity exist for school personnel to make parents aware of school expectations. In addition, parents and other community persons interested in school (e.g., school board members) often hold expectations for teachers, schools, and schooling which are rooted in their own experiences, biases, and needs. These predispositions exert powerful influences on their choices and judgments with respect to the

appropriateness/suitability of classroom/school environments for their children.

A second analysis of the IR&DT ethnographic data would result in an initial set of "school appropriate" behaviors. Such a list would guide interested school personnel in the development of district parent education programs.

This concludes my remarks.